RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 10/560, 918

Source: IFWP

Date Processed by STIC: 12/30/2005

ENTERED

RAW SEQUENCE LISTING   DATE: 12/30/2005
PATENT APPLICATION: US/10/560,918   TIME: 09:44:31

Input Set : **A:\MER-142 SEQ LIST.txt**
Output Set: **N:\CRF4\12302005\J560918.raw**

```
      4 <110> APPLICANT: BAKER, Matthew
      5        WATKINS, John
      7 <120> TITLE OF INVENTION: MODIFIED HIRUDIN PROTEINS AND T-CELL
      8        EPITOPES IN HIRUDIN
     10 <130> FILE REFERENCE: MER-142
C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/560,918
C--> 13 <141> CURRENT FILING DATE: 2005-12-16
     15 <150> PRIOR APPLICATION NUMBER: PCT/EP2004/006943
     16 <151> PRIOR FILING DATE: 2004-06-25
     18 <150> PRIOR APPLICATION NUMBER: EP03014332.5
     19 <151> PRIOR FILING DATE: 2003-06-26
     21 <160> NUMBER OF SEQ ID NOS: 108
     23 <170> SOFTWARE: FastSEQ for Windows Version 4.0
     25 <210> SEQ ID NO: 1
     26 <211> LENGTH: 31
     27 <212> TYPE: PRT
     28 <213> ORGANISM: hirudo medicinalis
     30 <400> SEQUENCE: 1
     31 Ala Cys Ile Leu Gly Ser Asp Gly Glu Lys Asn Gln Cys Val Thr Gly
     32 1               5                   10                  15
     33 Glu Gly Thr Pro Lys Pro Glu Ser His Asn Asp Gly Asp Phe Glu
     34             20                  25                  30
     37 <210> SEQ ID NO: 2
     38 <211> LENGTH: 65
     39 <212> TYPE: PRT
     40 <213> ORGANISM: Artificial Sequence
     42 <220> FEATURE:
     43 <223> OTHER INFORMATION: modified hirudin
W--> 45 <221> NAME/KEY: VARIANT
     46 <222> LOCATION: 13, 15, 21, 29
     47 <223> OTHER INFORMATION: X=T, L;
     48        X=T,A,H,Q,T,L;
     49        X=A,G,H,K,N,P,Q,R,V;
     50        X=A,D,E,G,H,K,N,Q,R,S,T,I;
W--> 54 <221> VARIANT
     55 <222> LOCATION: 30, 40, 47, 48
     56 <223> OTHER INFORMATION: X=A,D,E,G,H,K,N,P,Q,R,S,T,L;
     57        X=A,T,V;
     58        X=T,K;
     59        X=A,T,P
W--> 61 <221> VARIANT
     62 <222> LOCATION: 53, 56
     63 <223> OTHER INFORMATION: X=E,N,R,D;
```

RAW SEQUENCE LISTING   DATE: 12/30/2005
PATENT APPLICATION: US/10/560,918   TIME: 09:44:31

Input Set : A:\MER-142 SEQ LIST.txt
Output Set: N:\CRF4\12302005\J560918.raw

```
       64        X=H,F
W-->   66  <400> 2
W-->   67  Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Xaa Cys Xaa Cys
       68  1                   5                   10                  15
W-->   69  Glu Gly Ser Val Xaa Cys Gly Gln Gly Asn Lys Cys Xaa Xaa Gly Ser
       70                  20                  25                  30
W-->   71  Asp Gly Glu Lys Asn Gln Cys Xaa Thr Gly Glu Gly Thr Pro Xaa Xaa
       72          35                  40                  45
W-->   73  Glu Ser His Asn Xaa Gly Asp Xaa Glu Glu Ile Pro Glu Glu Tyr Leu
       74      50                  55                  60
       75  Gln
       76  65
       79  <210> SEQ ID NO: 3
       80  <211> LENGTH: 65
       81  <212> TYPE: PRT
       82  <213> ORGANISM: hirudo medicinalis
       84  <400> SEQUENCE: 3
       85  Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
       86  1                   5                   10                  15
       87  Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
       88                  20                  25                  30
       89  Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
       90          35                  40                  45
       91  Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
       92      50                  55                  60
       93  Gln
       94  65
       .97  <210> SEQ ID NO: 4
       98  <211> LENGTH: 65
       99  <212> TYPE: PRT
      100  <213> ORGANISM: Artificial Sequence
      102  <220> FEATURE:
      103  <223> OTHER INFORMATION: modified hirudin
      105  <400> SEQUENCE: 4
      106  Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
      107  1                   5                   10                  15
      108  Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ala Ala Gly Ser
      109                  20                  25                  30
      110  Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
      111          35                  40                  45
      112  Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
      113      50                  55                  60
      114  Gln
      115  65
      118  <210> SEQ ID NO: 5
      119  <211> LENGTH: 65
      120  <212> TYPE: PRT
      121  <213> ORGANISM: Artificial Sequence
      123  <220> FEATURE:
```

124 <223> OTHER INFORMATION: modified hirudin
126 <400> SEQUENCE: 5
127 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
128 1   5   10   15
129 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Arg His Gly Ser
130   20   25   30
131 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
132   35   40   45
133 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
134   50   55   60
135 Gln
136 65
139 <210> SEQ ID NO: 6
140 <211> LENGTH: 65
141 <212> TYPE: PRT
142 <213> ORGANISM: Artificial Sequence
144 <220> FEATURE:
145 <223> OTHER INFORMATION: modified hirudin
147 <400> SEQUENCE: 6
148 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
149 1   5   10   15
150 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Glu Lys Gly Ser
151   20   25   30
152 Asp Gly Glu Lys Asn Gln Cys Ala Thr Gly Glu Gly Thr Pro Lys Pro
153   35   40   45
154 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
155   50   55   60
156 Gln
157 65
160 <210> SEQ ID NO: 7
161 <211> LENGTH: 65
162 <212> TYPE: PRT
163 <213> ORGANISM: Artificial Sequence
165 <220> FEATURE:
166 <223> OTHER INFORMATION: modified hirudin
168 <400> SEQUENCE: 7
169 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
170 1   5   10   15
171 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Glu Lys Gly Ser
172   20   25   30
173 Asp Gly Glu Lys Asn Gln Cys Thr Thr Gly Glu Gly Thr Pro Lys Pro
174   35   40   45
175 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
176   50   55   60
177 Gln
178 65
181 <210> SEQ ID NO: 8
182 <211> LENGTH: 65
183 <212> TYPE: PRT

RAW SEQUENCE LISTING   DATE: 12/30/2005
PATENT APPLICATION: US/10/560,918   TIME: 09:44:31

Input Set : A:\MER-142 SEQ LIST.txt
Output Set: N:\CRF4\12302005\J560918.raw

```
.184 <213> ORGANISM: Artificial Sequence
 186 <220> FEATURE:
 187 <223> OTHER INFORMATION: modified hirudin
 189 <400> SEQUENCE: 8
 190 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 191 1               5                   10                  15
 192 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Glu Lys Gly Ser
 193             20                  25                  30
 194 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 195         35                  40                  45
 196 Glu Ser His Asn Glu Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 197     50                  55                  60
 198 Gln
 199 65
 202 <210> SEQ ID NO: 9
 203 <211> LENGTH: 65
 204 <212> TYPE: PRT
 205 <213> ORGANISM: Artificial Sequence
 207 <220> FEATURE:
 208 <223> OTHER INFORMATION: modified hirudin
 210 <400> SEQUENCE: 9
 211 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 212 1               5                   10                  15
 213 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Glu Lys Gly Ser
 214             20                  25                  30
 215 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 216         35                  40                  45
 217 Glu Ser His Asn Asn Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 218     50                  55                  60
 219 Gln
 220 65
 223 <210> SEQ ID NO: 10
 224 <211> LENGTH: 65
 225 <212> TYPE: PRT
 226 <213> ORGANISM: Artificial Sequence
 228 <220> FEATURE:
 229 <223> OTHER INFORMATION: modified hirudin
 231 <400> SEQUENCE: 10
 232 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 233 1               5                   10                  15
 234 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Arg Lys Gly Ser
 235             20                  25                  30
 236 Asp Gly Glu Lys Asn Gln Cys Ala Thr Gly Glu Gly Thr Pro Lys Pro
 237         35                  40                  45
 238 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 239     50                  55                  60
 240 Gln
 241 65
 244 <210> SEQ ID NO: 11
```

```
245 <211> LENGTH: 65
246 <212> TYPE: PRT
247 <213> ORGANISM: Artificial Sequence
249 <220> FEATURE:
250 <223> OTHER INFORMATION: modified hirudin
252 <400> SEQUENCE: 11
253 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
254  1               5                   10                  15
255 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Arg Lys Gly Ser
256              20                  25                  30
257 Asp Gly Glu Lys Asn Gln Cys Thr Thr Gly Glu Gly Thr Pro Lys Pro
258          35                  40                  45
259 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
260      50                  55                  60
261 Gln
262 65
265 <210> SEQ ID NO: 12
266 <211> LENGTH: 65
267 <212> TYPE: PRT
268 <213> ORGANISM: Artificial Sequence
270 <220> FEATURE:
271 <223> OTHER INFORMATION: modified hirudin
273 <400> SEQUENCE: 12
274 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
275  1               5                   10                  15
276 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Arg Lys Gly Ser
277              20                  25                  30
278 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
279          35                  40                  45
280 Glu Ser His Asn Glu Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
281      50                  55                  60
282 Gln
283 65
286 <210> SEQ ID NO: 13
287 <211> LENGTH: 65
288 <212> TYPE: PRT
289 <213> ORGANISM: Artificial Sequence
291 <220> FEATURE:
292 <223> OTHER INFORMATION: modified hirudin
294 <400> SEQUENCE: 13
295 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
296  1               5                   10                  15
297 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Arg Lys Gly Ser
298              20                  25                  30
299 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
300          35                  40                  45
301 Glu Ser His Asn Asn Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
302      50                  55                  60
303 Gln
```

RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 12/30/2005
PATENT APPLICATION: US/10/560,918   TIME: 09:44:32

Input Set : **A:\MER-142 SEQ LIST.txt**
Output Set: **N:\CRF4\12302005\J560918.raw**

<u>Please Note:</u>
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:2; Xaa Pos. 13,15,21,29,30,40,47,48,53,56

VERIFICATION SUMMARY   DATE: 12/30/2005
PATENT APPLICATION: **US/10/560,918**   TIME: 09:44:32

Input Set : **A:\MER-142 SEQ LIST.txt**
Output Set: **N:\CRF4\12302005\J560918.raw**

```
L:12 M:270 C: Current Application Number differs, Replaced Current Application Number
L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:45 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:54 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:61 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:66 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:2
L:67 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0
L:69 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:16
L:71 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:32
L:73 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:48
```